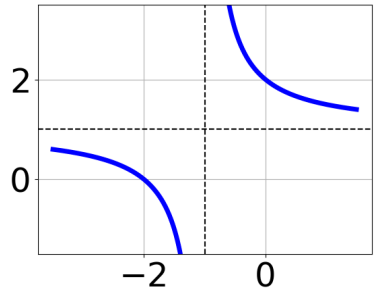
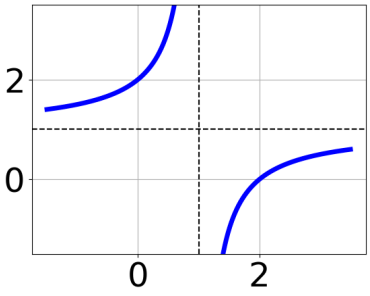
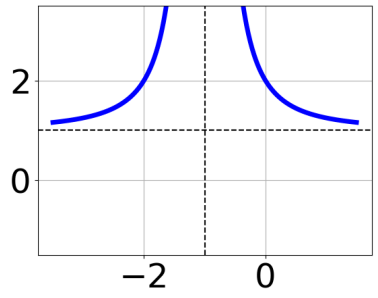
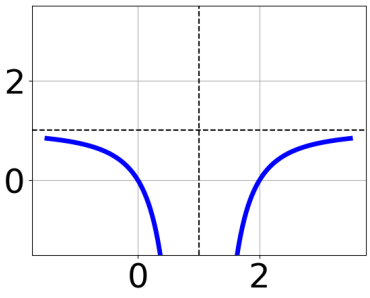
1. Choose the graph of the equation below.

$$f(x) = \frac{1}{(x-1)^2} + 1$$

A. 

C. 

B. 

D. 

E. None of the above.

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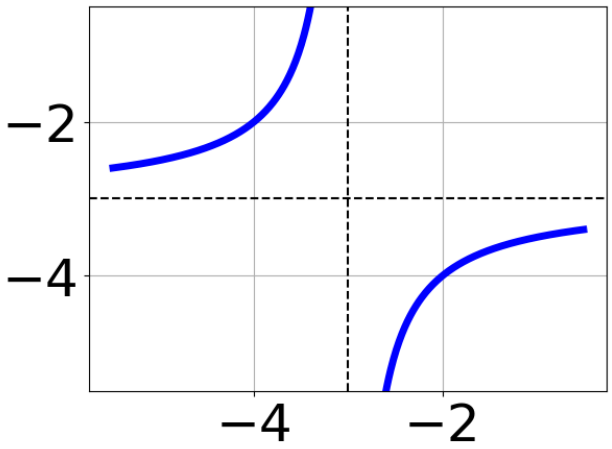
2. Choose the equation of the function graphed below.



A. $f(x) = \dfrac{1}{(x-3)^2} - 4$

B. $f(x) = \dfrac{1}{x-3} - 4$

C. $f(x) = \dfrac{-1}{x+3} - 4$

D. $f(x) = \dfrac{-1}{(x+3)^2} - 4$

E. None of the above

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3. Solve the rational equation below. Then, choose the interval(s) that the solution(s) belongs to.

$$\frac{5x}{5x-7} + \frac{-3x^2}{-20x^2+43x-21} = \frac{-4}{-4x+3}$$

A. $x_1 \in [1.73, 2.02]$ and $x_2 \in [0.03, 0.4]$

B. All solutions lead to invalid or complex values in the equation.

C. $x_1 \in [1.08, 1.47]$ and $x_2 \in [0.57, 0.79]$

D. $x \in [1.08, 1.47]$

E. $x \in [-0.56, 0.93]$

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4. Solve the rational equation below. Then, choose the interval(s) that the solution(s) belongs to.

$$\frac{72}{18x+18} + 1 = \frac{72}{18x+18}$$

A. All solutions lead to invalid or complex values in the equation.

B. $x_1 \in [-1, 0]$ and $x_2 \in [-1, 0]$

C. $x \in [0, 3]$

D. $x_1 \in [-1, 0]$ and $x_2 \in [1, 2]$

E. $x \in [-1.0, 0.0]$

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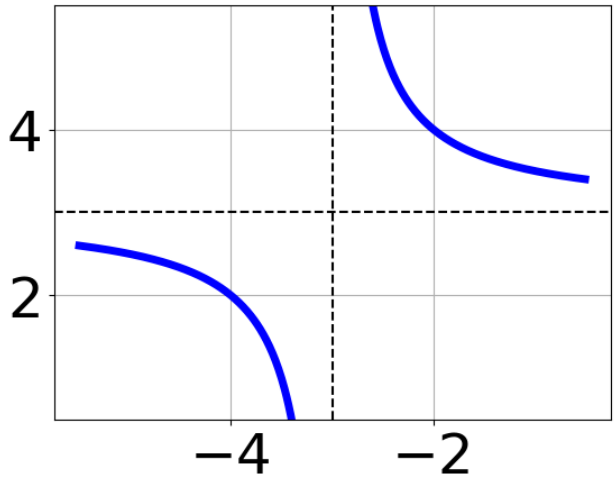
5. Choose the equation of the function graphed below.



A. $f(x) = \dfrac{1}{(x+3)^2} + 3$

B. $f(x) = \dfrac{-1}{(x-3)^2} + 3$

C. $f(x) = \dfrac{1}{x+3} + 3$

D. $f(x) = \dfrac{-1}{x-3} + 3$

E. None of the above

---

6. Solve the rational equation below. Then, choose the interval(s) that the solution(s) belongs to.

$$\frac{-8}{-6x+2} + -9 = \frac{-9}{48x-16}$$

A. $x \in [0.5, 2.5]$

B. $x_1 \in [-0.29, 0.02]$ and $x_2 \in [-1.5, 3.5]$

C. All solutions lead to invalid or complex values in the equation.

D. $x \in [-0.29, 0.02]$

E. $x_1 \in [0.09, 0.41]$ and $x_2 \in [-1.5, 3.5]$

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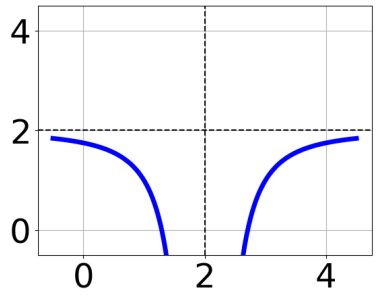
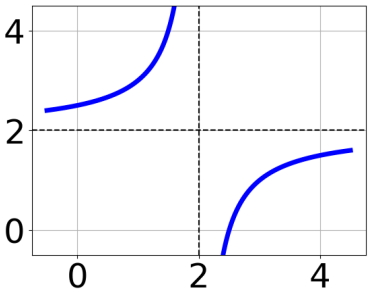
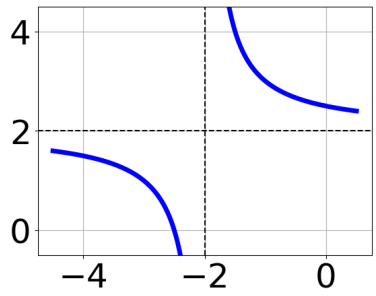
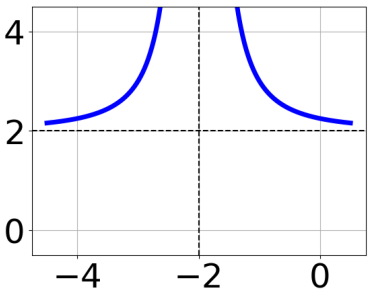
7. Choose the graph of the equation below.

$$f(x) = \frac{1}{x+2} - 2$$

A. 

C. 

B. 

D. 

E. None of the above.

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8. Determine the domain of the function below.

$$f(x) = \frac{4}{20x^2 - 54x + 36}$$

A. All Real numbers.

B. All Real numbers except $x = a$ and $x = b$, where $a \in [23.82, 24.02]$ and $b \in [29.77, 30.1]$

C. All Real numbers except $x = a$, where $a \in [23.82, 24.02]$

D. All Real numbers except $x = a$ and $x = b$, where $a \in [0.78, 1.31]$ and $b \in [1.33, 1.73]$

E. All Real numbers except $x = a$, where $a \in [0.78, 1.31]$

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9. Determine the domain of the function below.

$$f(x) = \frac{3}{12x^2 - 42x + 36}$$

A. All Real numbers except $x = a$, where $a \in [17.7, 20.1]$

B. All Real numbers.

C. All Real numbers except $x = a$ and $x = b$, where $a \in [0, 1.6]$ and $b \in [1.8, 2.3]$

D. All Real numbers except $x = a$, where $a \in [0, 1.6]$

E. All Real numbers except $x = a$ and $x = b$, where $a \in [17.7, 20.1]$ and $b \in [22.7, 24.9]$

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10. Solve the rational equation below. Then, choose the interval(s) that the solution(s) belongs to.

$$\frac{-4x}{3x + 3} + \frac{-2x^2}{-21x^2 - 12x + 9} = \frac{7}{-7x + 3}$$

A. $x_1 \in [-0.53, -0.32]$ and $x_2 \in [-1.3, -0.4]$

B. All solutions lead to invalid or complex values in the equation.

C. $x_1 \in [-0.53, -0.32]$ and $x_2 \in [0.1, 1.9]$

D. $x \in [0.36, 0.88]$

E. $x \in [1.51, 2.18]$
